

Jean Conkling... April 18, 2008

Zoo Critter - Turkey

The Robot Plan

The plan was to choose a robot that was already designed so I could just assemble the robot, making minor changes to make the Peacock from NXT Zoo into a turkey. A turkey spreads its wings to display for the female similarly to the peacock. Like in the book, I plan to use the ultrasonic sensor to sense the presence of another turkey. The light sensor will be used to distinguish between another tom turkey and a hen. If I can find, download and make the turkey gobble, that would be cool! ☺

It's been an extremely busy week so I chose my robot early, looked at a few of the others' choices and made plans to work on my robot starting Friday after school so I could start posting some pics... finishing on the weekend, posting more pics on Monday (when back to non-dialup) as I finished. Not having much time on the discussion board this week, it wasn't until Friday that I read someone's comment about some of the robots in Fay's NXT Zoo! book needing extra parts... hmmm... that made me wonder... did mine need extra parts?

The Actuality

As I set up to work after school in my room, I started setting out parts... ah, oh! I found out that not only did the Peacock need extra parts, it needed LOTS of extra parts, Technic parts... parts that NONE of my 5-6 other RCX Robotics sets had... hmmm... time for Plan B.

So, I brainstormed where I could get parts needed... Walmart, Target? Nope... Pitsco's already closed for the weekend...neighbors didn't have the right parts...

Realizing it's now too late to order parts... I started from Step 1, and started revising as I went... I originally started writing down the parts subbed in for others, but as I got deeper into the building process, I ended up building, tearing back apart, building again, tearing apart, etc... replacing more and more parts with different parts...

Now understand, I was WAY OUTSIDE my comfort zone in this... remember when I introduced myself saying I'm a "follow-the-directions" kind of lego person! But I was determined to give it a go before changing to another animal. Fortunately, I had several kinds of RCX sets to borrow from, and the pieces I used seem to work ok...

So, I tried to take pictures as I went along when the changes I made were totally different, but which worked basically in the same way... instead of going along step by step in the building process, I'd look ahead to see how the next parts had to connect to what I was building & revised as I went... some parts were built as the instructions were in the book, but most of the connections had to be revised.... I did have those 4 other RCX kits to borrow parts from, however, none of which had the needed Technic parts, but other similar parts...

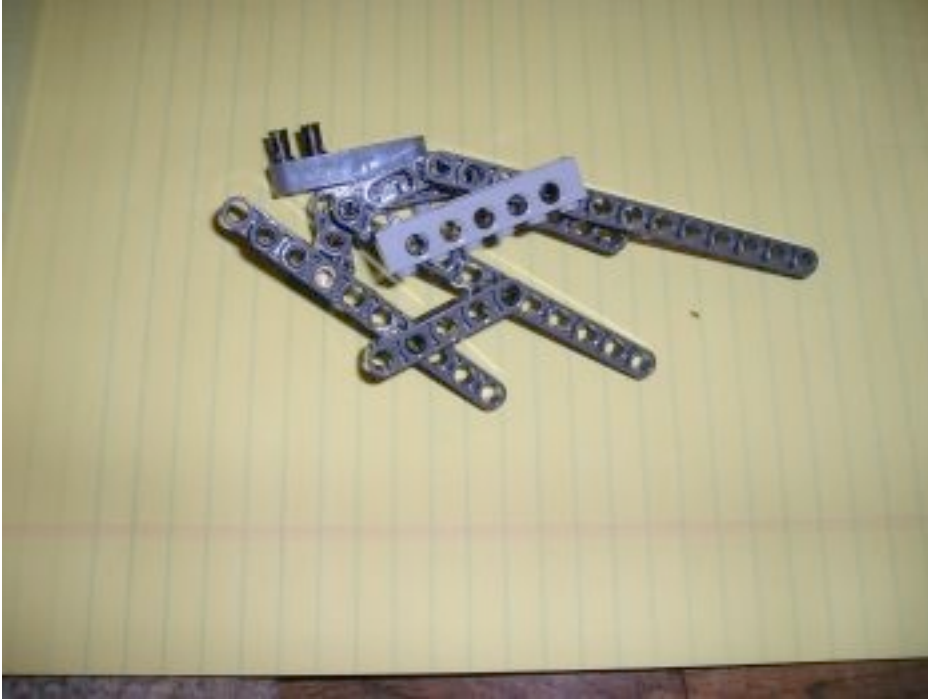
I worked until beyond midnight on Friday, and then most of Saturday until about 4 p.m. But my turkey looks pretty close to Fay's peacock ☺ Will add frills later!

Now just hope that the structure allow movement the way that the programming in the book plans for it to since my changes have made it heavier/bulkier ... quite a fat turkey!

Building Process–

Front Wheels – As is except for deciding to add another bushing when attached near the end...

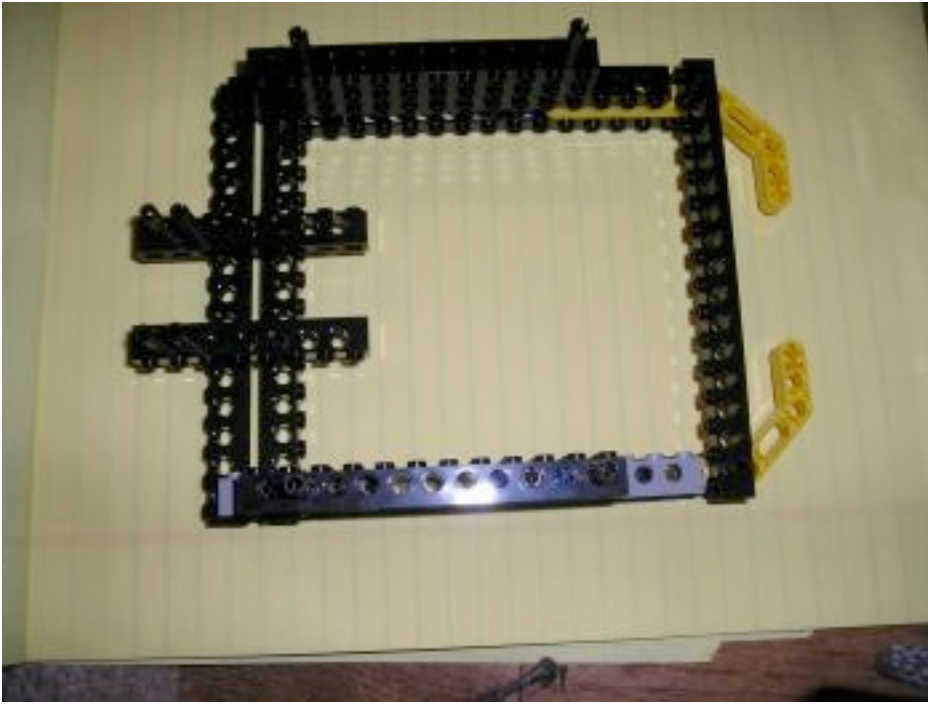
Left & Right Wings – Tried to stick close to using the book's original parts in these since these are moving parts. I did use shorter pieces than called for to save my 15-hole pieces for later use for the wings' gear base structure (Full Assembly, Steps 36-37). Key “ahh-haa” here... follow directions and use GREY pins... grey pins allow easier movement of pieces, black pins hold pieces more tightly together...



Note: You'll see black connector pieces here which were later changed to the gray connectors so the wings moved more freely.

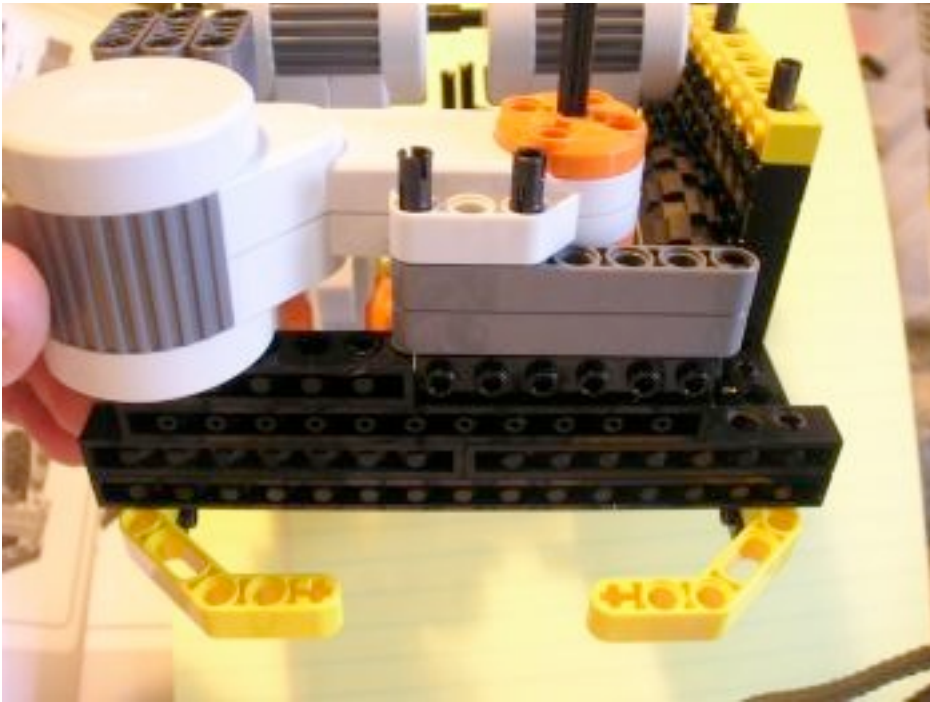
Full Assembly Section – this is where I had to ad lib A LOT! The lack of specialized connectors as used in the NXT Zoo! book's plans made me have to figure out how to make parts connect with just pins for the most part. And the beams were mostly replaced with bricks with holes (which my RCX sets had), starting with Step 1-33.

I continually had to look ahead to see where I needed to go to figure out how to devise a way to get there, using trial and error all along the way.

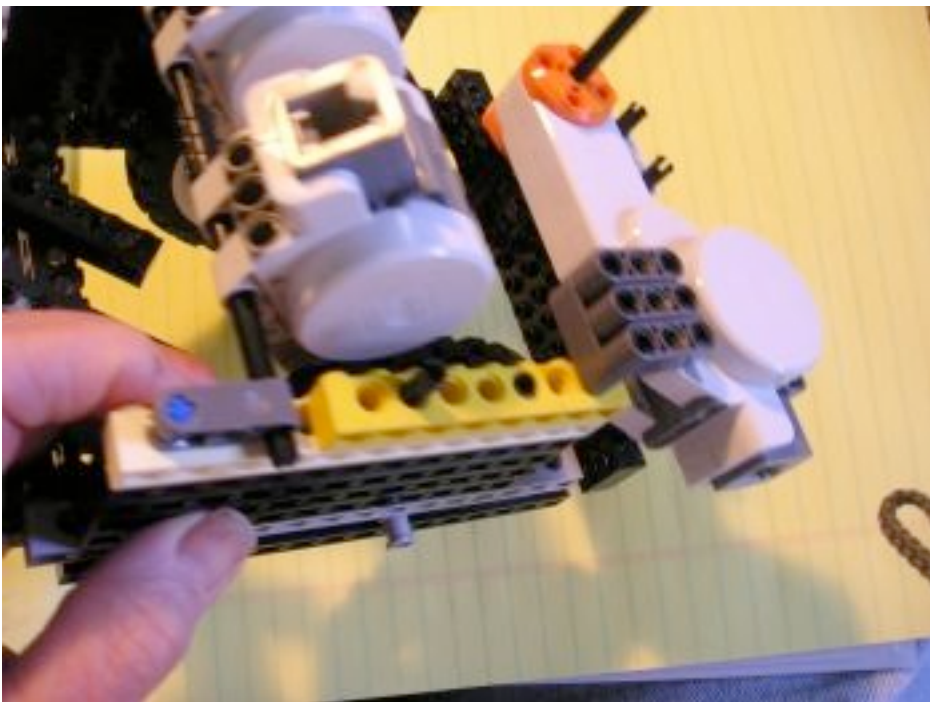


Changes necessary right from the start --- saving the beam pieces for later by replacing with beams with bricks with holes

When putting in the 3rd motor, I followed the plans loosely, substituting in what I had to closely match what was needed to build up parts to the right heights & placement.

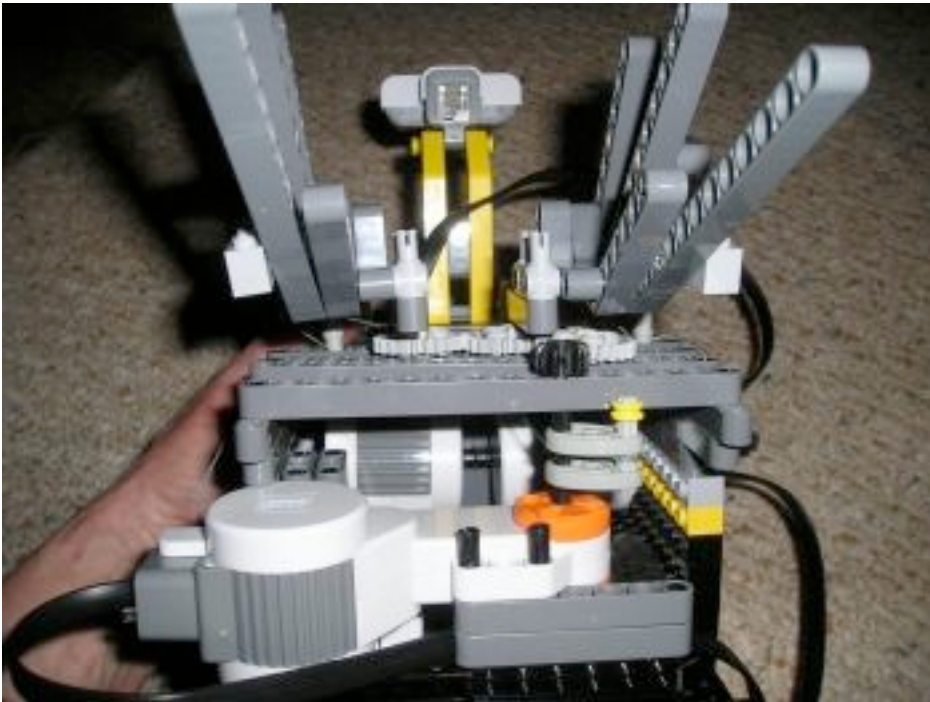


Changes to front of motor attachment

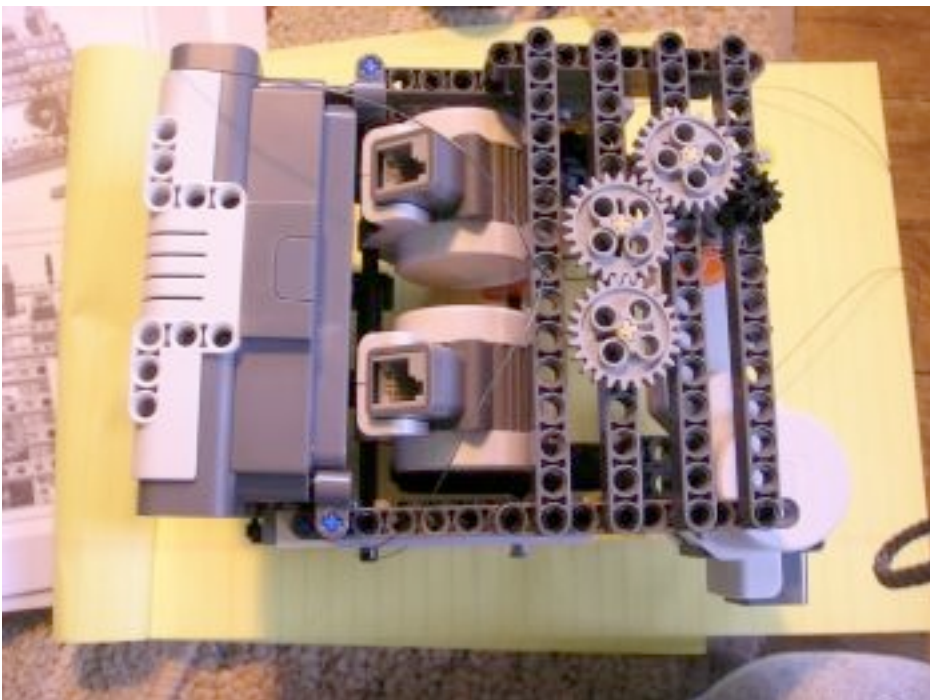


More motor attachment changes...

Steps 34-37 were followed pretty much as is in the book to build up the cams and wing gearing system.

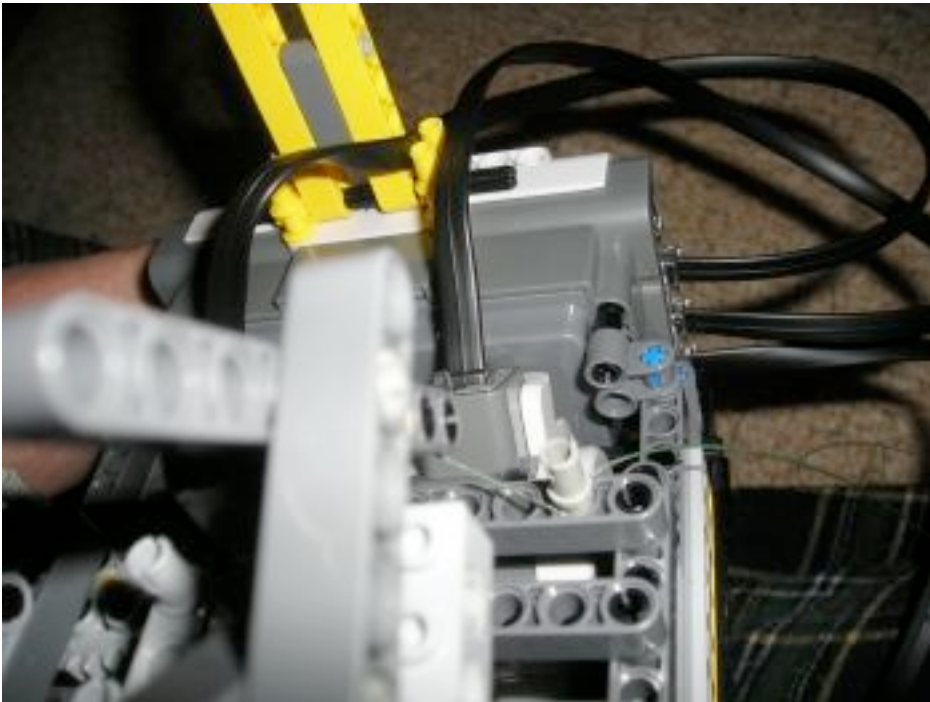


Cams in place, wings attached on top of the gears shown in next pic below...

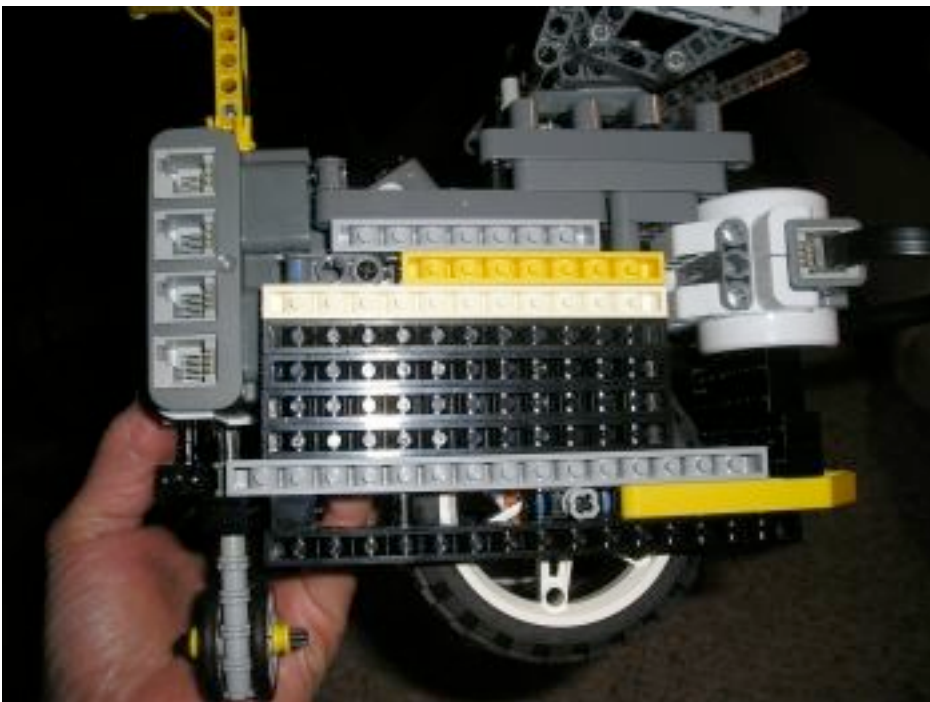


Gearing for wings

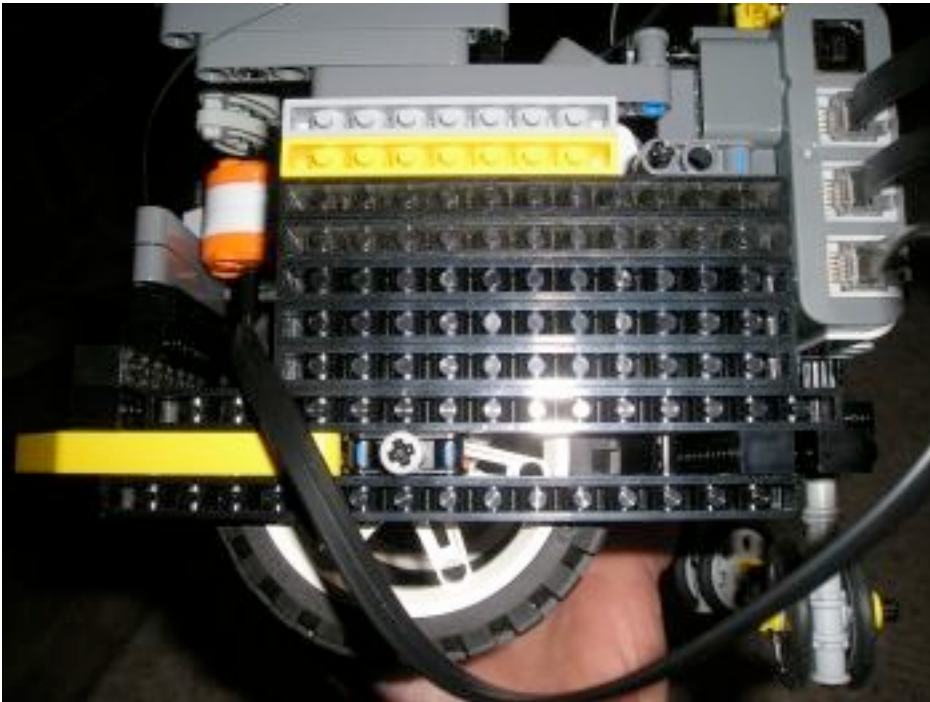
Steps 38-45 were used as guides only, ad libbing freely taking place here to get the general idea. The following pics show these revisions.



Revised NXT attachment



Left side changes – using bricks with holes and connecting pins



Right side changes, again showing use of bricks with holes.



Revised Turkey neck

Steps 46-47 were followed as is to attach wings leading to finished turkey.



Now on to the programming!